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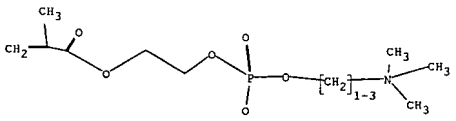

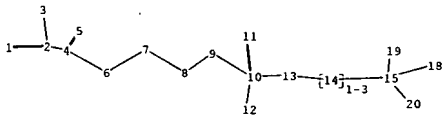

chain nodes :
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 18 19 20
chain bonds :
1-2 2-3 2-4 4-5 4-6 6-7 7-8 8-9 9-10 10-11 10-12 10-13 13-14
14-15 15-18 15-19 15-20
exact/norm bonds :
4-5 4-6 6-7 8-9 9-10 10-11 10-12 10-13
exact bonds :
1-2 2-3 2-4 7-8 13-14 14-15 15-18 15-19 15-20

Match level :
1:CLASS 2:CLASS 3:CLASS 4:CLASS 5:CLASS 6:CLASS 7:CLASS 8:CLASS
9:CLASS 10:CLASS 11:CLASS 12:CLASS 13:CLASS 14:CLASS 15:CLASS
18:CLASS 19:CLASS 20:CLASS

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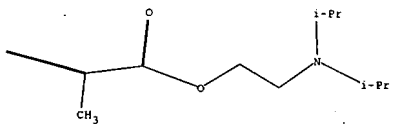

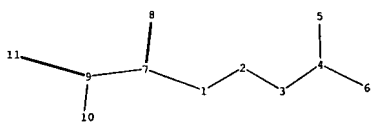

chain nodes :
1 2 3 4 5 6 7 8 9 10 11
chain bonds :
1-2 1-7 2-3 3-4 4-5 4-6 7-8 7-9 9-10 9-11
exact/norm bonds :
1-2 1-7 3-4 7-8
exact bonds :
2-3 4-5 4-6 7-9 9-10 9-11

Match level :
1:CLASS 2:CLASS 3:CLASS 4:CLASS 5:CLASS 6:CLASS 7:CLASS 8:CLASS
9:CLASS 10:CLASS 11:CLASS

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L5 ANSWER 1 OF 13 CAPLUS COPYRIGHT 2007 ACS on STN

AB The present invention relates to a polymer gelator which exhibits controllable liquid to gel phase transition behavior. The polymer may be of formula A-B-L-B-A where A represents a polymer unit which, when polymer (I) is provided in an aqueous medium, exhibits an increase in hydrophobicity upon changing the temperature or pH of the aqueous medium from a first temperature or pH value to a second temperature or pH value. B represents a polymer unit which is more hydrophilic than polymer unit A when said aqueous medium is at said second temperature or pH value. L represents a linking group which is cleavable by hydrolysis, oxidation or reduction The polymer may be a temperature dependent polymer gelator comprising polymers units C, D and E wherein polymer unit C is poly (2-hydroxypropyl methacrylate) and D is a polymer unit which, when said polymer gelator is provided in an aqueous medium, is more hydrophilic than polymer unit C. Each polymer may be provided in a polymer mixture in combination with a thermo-responsive diblock copolymer incorporating poly (2-hydroxypropyl methacrylate).

ACCESSION NUMBER: 2007:618919 CAPLUS
DOCUMENT NUMBER: 147:31557
TITLE: Polymer gelator with controllable liquid to gel phase transition behavior
INVENTOR(S): Armes, Steven Peter; Madsen, Peter Jeppe; Vo, Cong-Duan; Li, Chengming
PATENT ASSIGNEE(S): The University of Sheffield, UK
SOURCE: PCT Int. Appl., 91pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2007063320	A1	20070607	WO 2006-GB4487	20061201

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LV, LY, MA, MD, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, SV, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW
RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG, BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM

PRIORITY APPLN. INFO.: GB 2005-24740 A 20051203
REFERENCE COUNT: 3 THERE ARE 3 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L5 ANSWER 2 OF 13 CAPLUS COPYRIGHT 2007 ACS on STN

AB The main objective of this study was to synthesize novel folic acid-functionalized diblock copolymer micelles and evaluate their solubilization of two poorly water-soluble anti-tumor drugs, tamoxifen and

paclitaxel, which suffer from low water solubility and/or poor hydrolytic stability. The diblock copolymer consisted of a permanently hydrophilic block comprising 2-(methacryloyloxy)ethyl phosphorylcholine (MPC) residues and a pH-sensitive hydrophobic block comprising 2-(diisopropylamino)ethyl methacrylate (DPA) residues. Folic acid (FA) was conjugated to the end of the MPC block so that this group was located on the micelle periphery. Tamoxifen- and paclitaxel-loaded micelles were prepared from FA-MPC-DPA copolymers prepared with two different block compns. that were designed to produce optimal solubilization of each drug. Their drug-loading capacities and aqueous stabilities were determined by high performance liquid chromatog. The hydrodynamic diams. of tamoxifen- and paclitaxel-loaded FA-MPC-DPA micelles ranged from 30 to 60 nm, as judged by dynamic light scattering (DLS) and TEM studies. Finally, tamoxifen and paclitaxel release profiles were evaluated in phosphate buffer solution at pH 7.4 and 5. These studies demonstrated that FA-MPC-DPA micelles acted as useful drug carriers, leading to relatively slow release of both tamoxifen and paclitaxel into aqueous solution over a period of 7 days. In addition, rapid release can be triggered by lowering the solution pH to 5, which leads to protonation of the DPA block and hence rapid micellar dissociation

ACCESSION NUMBER: 2006:452760 CAPLUS
DOCUMENT NUMBER: 145:33634
TITLE: New folate-functionalized biocompatible block copolymer micelles as potential anti-cancer drug delivery systems
AUTHOR(S): Licciardi, Mariano; Giammona, Gaetano; Du, Jianzhong; Armes, Steven P.; Tang, Yiqing; Lewis, Andrew L.
CORPORATE SOURCE: Dipartimento di Chimica e Tecnologie Farmaceutiche, Palermo, 90123, Italy
SOURCE: Polymer (2006), 47(9), 2946-2955
CODEN: POLMAG; ISSN: 0032-3861
PUBLISHER: Elsevier Ltd.
DOCUMENT TYPE: Journal
LANGUAGE: English
REFERENCE COUNT: 13 THERE ARE 13 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L5 ANSWER 3 OF 13 CAPLUS COPYRIGHT 2007 ACS on STN
AB The micellization behavior of a diblock copolymer comprising a highly hydrophilic and biocompatible poly(2-methacryloyloxyethyl phosphorylcholine) (PMPC) corona-forming block and a pH-sensitive poly(2-(diisopropylamino)ethyl methacrylate) (PDPA) core-forming block (PMPC-b-PDPA) has been studied by static and dynamic light scattering (SDLS), TEM, and potentiometry. Self-assembly of PMPC-b-PDPA copolymers with two different DPA volume fractions (ϕDPA) leads to narrowly distributed and structurally distinct spherical micelles, as evidenced by their mol. weight (Mw,mic), aggregation number (Nagg), hydrodynamic radius (RH), corona width (W), and core radius (Rc). The excellent potential of these pH-responsive micelles as nanosized drug delivery vehicles was illustrated by the encapsulation of dipyridamole (DIP), a model hydrophobic drug that dissolves in acid solns. and becomes insol. above pH 5.8, which is comparable to the pKa of the PDPA block. The influence of micelle structure (namely Mw,mic, Nagg, RH, W, and Rc) on drug loading content, drug loading efficiency, partition coefficient, and release kinetics was investigated and confirmed by fluorescence spectroscopy studies. The maximum dipyridamole loadings within PMPC30-b-PDPA30 (RH = 14.0 nm; W = 4.8 nm; Rc = 9.2 nm) and PMPC30-b-PDPA60 (RH = 27.1 nm; W = 11.0 nm; Rc = 16.1 nm) micelles were 7 and 12% weight/wt.p, resp. This preferential solubilization of DIP into micelles formed by copolymer chains having longer core-forming

blocks (i.e., possessing larger core vols.) reflects the larger partition coefficient (KV) of DIP between the aqueous phase and PMPC30-b-PDPA60 micelles (KV = 5.7+104) compared to PMPC30-b-PDPA30 micelles (KV = 1.1+104). This enhanced ability of PMPC30-b-PDPA60 aggregates to entrap/stabilize small hydrophobic mols. also produces slower release kinetics. Rapid release can be triggered by lowering the pH to induce micellar dissociation

ACCESSION NUMBER: 2006:122088 CAPLUS
DOCUMENT NUMBER: 144:357277
TITLE: Phosphorylcholine-Based pH-Responsive Diblock Copolymer Micelles as Drug Delivery Vehicles: Light Scattering, Electron Microscopy, and Fluorescence Experiments
AUTHOR(S): Giacomelli, Cristiano; Le Men, Lucile; Borsali, Redouane; Lai-Kee-Him, Josephine; Brisson, Alain; Armes, Steven P.; Lewis, Andrew L.
CORPORATE SOURCE: Laboratoire de Chimie des Polymeres Organiques, Universite Bordeaux, Pessac, 33607, Fr.
SOURCE: Biomacromolecules (2006), 7(3), 817-828
CODEN: BOMAF6; ISSN: 1525-7797
PUBLISHER: American Chemical Society
DOCUMENT TYPE: Journal
LANGUAGE: English
REFERENCE COUNT: 43 THERE ARE 43 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L5 ANSWER 4 OF 13 CAPLUS COPYRIGHT 2007 ACS on STN
AB Highly biocompatible pH-sensitive diblock copolymer vesicles were prepared from the self-assembly of a biocompatible zwitterionic copolymer, poly[2-(methacryloyloxy)ethyl phosphorylcholine-block-2-(diisopropylamino)ethyl methacrylate], PMPC-b-PDPA. Vesicle formation occurred spontaneously by adjusting the solution pH from pH 2 to above 6, with the hydrophobic PDPA chains forming the vesicle walls. Transmission electron microscopy (TEM), dynamic laser light scattering (DLS), and UV-visible absorption spectrophotometry were used to characterize these vesicles. Gold nanoparticle-decorated vesicles were also obtained by treating the vesicles with HAuCl4, followed by NaBH4.

ACCESSION NUMBER: 2005:1257672 CAPLUS
DOCUMENT NUMBER: 144:177159
TITLE: pH-Sensitive vesicles based on a biocompatible zwitterionic diblock copolymer
AUTHOR(S): Du, Jianzhong; Tang, Yiqing; Lewis, Andrew L.; Armes, Steven P.
CORPORATE SOURCE: Department of Chemistry, The University of Sheffield, Brook Hill, Sheffield, S3 7HF, UK
SOURCE: Journal of the American Chemical Society (2005), 127(51), 17982-17983
CODEN: JACSAT; ISSN: 0002-7863
PUBLISHER: American Chemical Society
DOCUMENT TYPE: Journal
LANGUAGE: English
REFERENCE COUNT: 20 THERE ARE 20 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L5 ANSWER 5 OF 13 CAPLUS COPYRIGHT 2007 ACS on STN
AB Spectroscopic ellipsometry has been used to examine the pH-responsive interfacial adsorption of a series of biocompatible diblock copolymers incorporating 2-methacryloyloxyethyl phosphorylcholine-based (MPC)

residues and 2-(dialkylamino)ethyl methacrylate residues, with a specific focus on 2-(diethylamino)ethyl groups (referred to as MPCm-DEAn, where m and n refer to the mean ds.p. of each block) at the hydrophilic silicon oxide/water interface. For all the copolymers studied the surface excess shows only weak concentration dependence. Increasing the length of the DEA block has little effect on the dynamic or equilibrated adsorption at pH 7, indicating that the DEA block adopts a flat conformation on the silicon oxide surface at this pH. With increasing pH, however, the surface excess shows a dramatic increase, followed by a subsequent decline. The observed maximum in surface excess represents a balance between charge over-compensation of the copolymer with the oppositely charged surface and the subsequently reduced charge d. of the copolymer. Variations in the observed maxima for various MPCm-DEAn diblock copolymers indicate different surface conformations at high pH. Salt addition does not affect copolymer adsorption. This behavior is attractive for biomedical applications in which the ionic strength is variable. It was also found that the preadsorbed diblock copolymers immobilized DNA from solution to an extent that is proportional to the relative charge ratio between the anionic DNA and the cationic DEA block of the copolymer.

ACCESSION NUMBER: 2005:1002252 CAPLUS
DOCUMENT NUMBER: 143:441038
TITLE: Solution pH-Regulated Interfacial Adsorption of Diblock Phosphorylcholine Copolymers
AUTHOR(S): Zhao, Xiubo; Zhang, Zhuoqi; Pan, Fang; Ma, Yihua; Armes, Steve P.; Lewis, Andrew L.; Lu, Jian R.
CORPORATE SOURCE: Biological Physics Group, School of Physics and Astronomy, University of Manchester, Manchester, M60 1QD, UK
SOURCE: Langmuir (2005), 21(21), 9597-9603
CODEN: LANGD5; ISSN: 0743-7463
PUBLISHER: American Chemical Society
DOCUMENT TYPE: Journal
LANGUAGE: English
REFERENCE COUNT: 37 THERE ARE 37 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L5 ANSWER 6 OF 13 CAPLUS COPYRIGHT 2007 ACS on STN

AB Novel biomimetic gelators with star diblock copolymer architectures have been synthesized by atom-transfer radical polymerization (ATRP). Two types of trifunctional ATRP initiator were used to polymerize 2-(methacryloyloxy)ethyl phosphorylcholine (MPC) at 20°, followed by sequential monomer addition of various tertiary amine methacrylates or mixts. thereof. Poor living character was achieved using an amide-based trifunctional initiator, but the analogous triester initiator gave reasonably well-defined thermo-responsive and pH-responsive star diblock copolymers. The most effective thermo-responsive gelators were obtained by the statistical terpolymn. of 2-(dimethylamino)ethyl methacrylate (DMA), 2-(diethylamino)ethyl methacrylate (DEA), and a monomethoxy-capped poly(propylene oxide) methacrylate (PPOMA), whereas pH-responsive gelators were prepared using 2-(diisopropylamino)ethyl methacrylate (DPA) as the second monomer. Star diblock copolymer gelators that were both thermo-responsive and pH-responsive were obtained by the statistical copolymn. of DMA with DPA. Copolymer compns. were assessed by 1H NMR spectroscopy, and the mol. weight distributions of the three-arm star MPC homopolymer precursors were assessed by aqueous gel permeation chromatog. Static light scattering was used to obtain weight-average mol. wts. of selected star diblock copolymers and rheol. measurements and variable-temperature 1H NMR were used to probe the onset of gelation.

ACCESSION NUMBER: 2005:604311 CAPLUS
DOCUMENT NUMBER: 143:306629
TITLE: Biomimetic Stimulus-Responsive Star Diblock Gelators
AUTHOR(S): Li, Yuting; Tang, Yiqing; Narain, Ravin; Lewis, Andrew L.; Armes, Steven P.
CORPORATE SOURCE: Department of Chemistry Dainton Building, University of Sheffield, Sheffield, S3 7HF, UK
SOURCE: Langmuir (2005), 21(22), 9946-9954
CODEN: LANGD5; ISSN: 0743-7463
PUBLISHER: American Chemical Society
DOCUMENT TYPE: Journal
LANGUAGE: English
REFERENCE COUNT: 42 THERE ARE 42 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L5 ANSWER 7 OF 13 CAPLUS COPYRIGHT 2007 ACS on STN
AB Major challenges associated with nano-sized drug delivery systems include removal from systemic circulation by phagocytic cells and controlling appropriate drug release at target sites. 2-methacryloyloxyethyl phosphorylcholine (MPC) has been copolymd. in turn with two pH responsive comonomers (2-(diethylamino)ethyl methacrylate)(DEA) and 2-(diisopropylamino)ethyl methacrylate (DPA), to develop novel biocompatible drug delivery vehicles. Micelles were prepared from a series of copolymers with varying block compns. and their colloidal stability and dimensions were assessed over a range of solution pH using photon correlation spectroscopy. The drug loading capacities of these micelles were evaluated using Orange OT dye as a model compound The cytotoxicity of the micelles was assessed using an in vitro assay. The MPC-DEA diblock copolymers formed micelles at around pH 8 and longer DEA block lengths allowed higher drug loadings. However, these micelles were not stable at physiol. pH. In contrast, MPC-DPA diblock copolymers formed micelles of circa 30 nm diameter at physiol. pH. In vitro assays indicated that these MPC-DPA diblock copolymers had negligible cytotoxicities. Thus novel non-toxic biocompatible micelles of appropriate size and good colloidal stability with pH-modulated drug uptake and release can be readily produced using MPC-DPA diblock copolymers.
ACCESSION NUMBER: 2005:422297 CAPLUS
DOCUMENT NUMBER: 143:392669
TITLE: Novel biocompatible phosphorylcholine-based self-assembled nanoparticles for drug delivery
AUTHOR(S): Salvage, Jonathan P.; Rose, Susanna F.; Phillips, Gary J.; Hanlon, Geoffrey W.; Lloyd, Andrew W.; Ma, Iris Y.; Armes, Stephen P.; Billingham, Norman C.; Lewis, Andrew L.
CORPORATE SOURCE: Biomedical Materials Research Group, School of Pharmacy and Biomolecular Sciences, University of Brighton, Moulsecoomb, BN2 4GJ, UK
SOURCE: Journal of Controlled Release (2005), 104(2), 259-270
CODEN: JCREEC; ISSN: 0168-3659
PUBLISHER: Elsevier B.V.
DOCUMENT TYPE: Journal
LANGUAGE: English
REFERENCE COUNT: 35 THERE ARE 35 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L5 ANSWER 8 OF 13 CAPLUS COPYRIGHT 2007 ACS on STN
AB Two synthetic routes to folic acid (FA)-functionalized diblock copolymers based on 2-(methacryloyloxy)ethyl phosphorylcholine [MPC] and either 2-(dimethylamino)ethyl methacrylate [DMA] or 2-(diisopropylamino)ethyl

methacrylate [DPA] were explored. The most successful route involved atom transfer radical polymerization (ATRP) of MPC followed by the tertiary amine methacrylate using a 9-fluorenylmethyl chloroformate (Fmoc)-protected ATRP initiator. Deprotection of the Fmoc groups produced terminal primary amine groups, which were conjugated with FA to produce two series of novel FA-functionalized biocompatible block copolymers. Nonfunctionalized MPC-DMA diblock copolymers have been previously shown to be effective synthetic vectors for DNA condensation; thus, these FA-functionalized MPC-DMA diblock copolymers appear to be well suited to gene therapy applications based on cell targeting strategies. In contrast, the FA-MPC-DPA copolymers are currently being evaluated as pH-responsive micellar vehicles for the delivery of highly hydrophobic anticancer drugs.

ACCESSION NUMBER: 2005:78538 CAPLUS
DOCUMENT NUMBER: 142:336698
TITLE: Synthesis of Novel Folic Acid-Functionalized Biocompatible Block Copolymers by Atom Transfer Radical Polymerization for Gene Delivery and Encapsulation of Hydrophobic Drugs
AUTHOR(S): Licciardi, M.; Tang, Y.; Billingham, N. C.; Armes, S. P.; Lewis, A. L.
CORPORATE SOURCE: Department of Chemistry, University of Sussex, Falmer Brighton, BN1 9QJ, UK
SOURCE: Biomacromolecules (2005), 6(2), 1085-1096
CODEN: BOMAF6; ISSN: 1525-7797
PUBLISHER: American Chemical Society
DOCUMENT TYPE: Journal
LANGUAGE: English
REFERENCE COUNT: 25 THERE ARE 25 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L5 ANSWER 9 OF 13 CAPLUS COPYRIGHT 2007 ACS on STN
AB Title block copolymers have core blocks with a degree of polymerization of at least 100, while the terminal blocks have an average degree of polymerization of at least 20. A solution of polymer in a liquid may be caused to change its characteristics, for instance rheol., upon being subjected to a stimulus such as a change in temperature or pH. Examples comprise core blocks formed of 2-(methacryloyloxy)ethyl 2-(trimethylammonio)ethyl phosphate inner salt and terminal blocks formed of 2-(diisopropylamino)ethyl methacrylate. Upon changing the pH from around 2 to around 8, an aqueous solution of the block copolymer gels, the solution becoming mobile again upon lowering the pH. The effect is due to deprotonation of a quaternary ammonium pendant ion to form a nonionized group and subsequent protonation to form an ionized group. This changes the hydrophilicity of the terminal blocks and allowing formation of a network of micellar structures when the pendant groups are not ionized and relatively hydrophobic and associated in micelles.

ACCESSION NUMBER: 2004:675770 CAPLUS
DOCUMENT NUMBER: 141:207676
TITLE: Block copolymers having hydrophilic cores with pendant zwitterionic groups and terminals with stimulus-responsive groups
INVENTOR(S): Lewis, Andrew Lennard; Armes, Steven Peter; Ma, Yinghua
PATENT ASSIGNEE(S): Biocompatibles UK Limited, UK
SOURCE: PCT Int. Appl., 88 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2004069888	A2	20040819	WO 2004-GB449	20040205
WO 2004069888	A3	20050324		
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI				
RW: BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
EP 1590388	A2	20051102	EP 2004-708397	20040205
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK				
US 2006069203	A1	20060330	US 2005-544113	20050802
PRIORITY APPLN. INFO.:			EP 2003-250730 A	20030205
			WO 2004-GB449 W	20040205
OTHER SOURCE(S):	MARPAT 141:207676			

L5 ANSWER 10 OF 13 CAPLUS COPYRIGHT 2007 ACS on STN
AB The self-assembly of the pH-responsive DPA50-MPC250-DPA50 triblock copolymer (DPA = 2-(diisopropylamino)ethyl methacrylate, MPC = 2-methacryloyloxyethyl phosphorylcholine) was investigated using 1H NMR, small-angle neutron scattering (SANS), and rheol. measurements. A series of solns. (0.7, 1, 2, 4, 6, and 9%) was prepared by dissolving the copolymer in DCl/D2O (pH 2). After quenching with NaOD (adjusting pH 9), the formation of micelles and gels was studied. Micelles were formed on deprotonating the DPA blocks. Liquid-like behavior was obtained in dilute solns., while free-standing micellar gels were observed at higher concns. (≥6%). The SANS data from lower concentrated solns. were consistent with the formation of flower-like micelles. The MPC-based chains in the corona were not fully stretched.

ACCESSION NUMBER: 2004:272537 CAPLUS
DOCUMENT NUMBER: 140:357997
TITLE: Microstructure and Physical Properties of a pH-Responsive Gel Based on a Novel Biocompatible ABA-Type Triblock Copolymer
AUTHOR(S): Castelletto, Valeria; Hamley, Ian W.; Ma, Yinghua; Bories-Azeau, Xavier; Armes, Steven P.; Lewis, Andrew L.
CORPORATE SOURCE: Department of Chemistry, University of Leeds, Leeds, LS2 9JT, UK
SOURCE: Langmuir (2004), 20(10), 4306-4309
CODEN: LANGD5; ISSN: 0743-7463
PUBLISHER: American Chemical Society
DOCUMENT TYPE: Journal
LANGUAGE: English
REFERENCE COUNT: 18 THERE ARE 18 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L5 ANSWER 11 OF 13 CAPLUS COPYRIGHT 2007 ACS on STN
AB An aqueous composition comprises an amphiphilic block copolymer, having a hydrophilic block comprising pendant zwitterionic groups and a hydrophobic block, and a biol. active compound associated with the polymer. The polymer is preferably in the form of micelles, and preferably the biol. active is a

hydrophobic drug, for instance having a calculated or exptl. determined logP of at least 1.0, where P is the octanol-water partition coefficient The hydrophilic block is preferably formed from acrylic monomer including phosphorylcholine groups. The hydrophobic group is suitably formed from monomer which has groups which can be ionized at useful pH values, especially tertiary amine groups. Micelles may be formed by dissolving the block copolymer in aqueous solvent at a pH at which the amine groups are protonated then raising the pH to a value at which the amine is groups are substantially deprotonated, whereupon micelles spontaneously form. The preformed micelles are then contacted with active, under conditions such that solubilization of the active occurs. The active may be a water-insol. drug, e.g., for tumor treatment. Thus, diblock copolymers were prepared by the polymerization of the reaction product from monomethoxy-PEG and 2-bromoisobutyryl bromide with diethylaminoethyl methacrylate. The polymer was subjected to temperature-induced micellization. An antitumor drug was incorporated into the micelles of the above polymer.

ACCESSION NUMBER: 2003:719281 CAPLUS
DOCUMENT NUMBER: 139:250280
TITLE: Drug carriers comprising amphiphilic block copolymers
INVENTOR(S): Lewis, Andrew Lennard; Armes, Steven Peter; Salvage, Jonathan P.; Lloyd, Andrew P.
PATENT ASSIGNEE(S): Biocompatibles UK Limited, UK
SOURCE: PCT Int. Appl., 73 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2003074026	A1	20030912	WO 2003-GB958	20030307
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW				
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
AU 2003214387	A1	20030916	AU 2003-214387	20030307
EP 1480619	A1	20041201	EP 2003-709958	20030307
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK				
US 2005220880	A1	20051006	US 2005-506805	20050119
PRIORITY APPLN. INFO.:			EP 2002-251505 A	20020307
			WO 2003-GB958 W	20030307

REFERENCE COUNT: 3 THERE ARE 3 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L5 ANSWER 12 OF 13 CAPLUS COPYRIGHT 2007 ACS on STN

AB ABA triblock copolymers [A = 2-(diisopropylamino)ethyl methacrylate), DPA or 2-(diethylamino)ethyl methacrylate), DEA]; [B = 2-methacryloyloxyethyl phosphorylcholine, MPC] prepared using atom transfer radical polymerization dissolve in acidic solution but form biocompatible free-standing gels at

around neutral pH in moderately concentrated aqueous solution (above approx. 10 w/v % copolymer). Proton NMR studies indicate that phys. gelation occurs because the deprotonated outer DPA (or DEA) blocks become hydrophobic, which leads to attractive interactions between the chains: addition of acid leads to immediate dissoln. of the micellar gel. Release studies using dipyridamole as a model hydrophobic drug indicate that sustained release profiles can be obtained from these gels under physiol. relevant conditions. More concentrated DPA-MPC-DPA gels give slower release profiles, as expected. At lower pH, fast, triggered release can also be achieved, because gel dissoln. occurs under these conditions. Furthermore, the nature of the outer block also plays a role; the more hydrophobic DPA-MPC-DPA triblock gels are formed at lower copolymer concns. and retain the drug longer than the DEA-MPC-DEA triblock gels.

ACCESSION NUMBER: 2003:485136 CAPLUS
DOCUMENT NUMBER: 139:202311
TITLE: Synthesis of biocompatible, stimuli-responsive, physical gels based on ABA triblock copolymers
AUTHOR(S): Ma, Yinghua; Tang, Yiqing; Billingham, Norman C.; Armes, Steven P.; Lewis, Andrew L.
CORPORATE SOURCE: School of Chemistry Physics and Environmental Science, University of Sussex, Falmer Brighton, BN1 9QJ, UK
SOURCE: Biomacromolecules (2003), 4(4), 864-868
CODEN: BOMAF6; ISSN: 1525-7797
PUBLISHER: American Chemical Society
DOCUMENT TYPE: Journal
LANGUAGE: English
REFERENCE COUNT: 26 THERE ARE 26 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L5 ANSWER 13 OF 13 CAPLUS COPYRIGHT 2007 ACS on STN
AB 2-Methacryloyloxyethyl phosphorylcholine (MPC) is commonly used to prepare biocompatible copolymers that have delivered clin. proven benefits in various biomedical applications. Recently, we reported that MPC could be homopolymd. to high conversions with good control via atom transfer radical polymerization (ATRP) in protic media. In the present study we describe the synthesis of a wide range of well-defined MPC-based block copolymers using either near-monodisperse macroinitiators or sequential monomer addition With the former approach, the macroinitiators were based on either poly(alkylene oxides) or poly(dimethylsiloxane). With the latter approach, suitable comonomers included a wide range of methacrylic and other monomers, including 2-(dimethylamino)ethyl methacrylate (DMA) and its quaternized derivs., 2-(diethylamino)ethyl methacrylate (DEA), 2-(diisopropylamino)ethyl methacrylate (DPA), Me methacrylate, 2-hydroxyethyl methacrylate, 2-hydroxypropyl methacrylate, and glycerol monomethacrylate. Polymerization of MPC using the three macroinitiators yielded novel PEO-MPC, PPO-MPC, and PDMS-MPC diblock copolymers. The PPO-MPC diblock copolymer proved to be thermoresponsive: mol. dissoln. occurred in cold water, with colloidal aggregates being formed reversibly at elevated temps. due to the inverse temperature solubility behavior of the PPO block. For the sequential monomer addition syntheses, the MPC monomer was generally polymerized first under optimized conditions, followed by the second monomer. High conversions were obtained for both stages of polymerization, and where applicable, aqueous GPC analyses indicated reasonably low polydispersities and

good blocking efficiencies. Above pH 8, the MPC-DMA diblock copolymers also exhibited thermoresponsive behavior, forming DMA-core aggregates at elevated temperature Spontaneous dissociation occurred on cooling to ambient temperature as the hydrophobic DMA block became hydrophilic again. The MPC-DMA, MPC-DEA, and MPC-DPA diblock copolymers proved to be pH-responsive polymeric surfactants at ambient temperature: mol. dissoln. occurred in dilute acidic solution with well-defined, near-monodisperse micelles being formed at around neutral pH. In each case, the MPC block formed the biocompatible micelle coronas and the tertiary amine methacrylate block formed the hydrophobic micelle cores. In the case of the MPC-DPA diblock copolymer, the pyrene partition constant for the DPA-core micelles at pH 9 was similar to that reported previously for polystyrene-core micelles. These new MPC-based diblock copolymers are being evaluated as new nonviral vectors for DNA condensation and "stealthy" nanocapsules for the delivery of hydrophobic drugs and also for the synthesis of biocompatible shell cross-linked micelles.

ACCESSION NUMBER: 2003:312955 CAPLUS
DOCUMENT NUMBER: 139:53402
TITLE: Well-Defined Biocompatible Block Copolymers via Atom Transfer Radical Polymerization of 2-Methacryloyloxyethyl Phosphorylcholine in Protic Media
AUTHOR(S): Ma, Yinghua; Tang, Yiqing; Billingham, Norman C.; Armes, Steven P.; Lewis, Andrew L.; Lloyd, Andrew W.; Salvage, Jonathan P.
CORPORATE SOURCE: School of Chemistry Physics and Environmental Science, University of Sussex, Falmer, Brighton, BN1 9QJ, UK
SOURCE: Macromolecules (2003), 36(10), 3475-3484
CODEN: MAMOBX; ISSN: 0024-9297
PUBLISHER: American Chemical Society
DOCUMENT TYPE: Journal
LANGUAGE: English
REFERENCE COUNT: 53 THERE ARE 53 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

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(FILE 'HOME' ENTERED AT 17:31:59 ON 03 OCT 2007)

FILE 'REGISTRY' ENTERED AT 17:32:11 ON 03 OCT 2007
L1 STRUCTURE UPLOADED
L2 STRUCTURE UPLOADED
L3 554 SSS FULL L1
L4 70 SSS FULL L2

FILE 'CAPLUS' ENTERED AT 17:32:57 ON 03 OCT 2007
L5 13 L3 AND L4